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ABSTRACT

Five explanations for students not learning effectively are examined for their soundness, support from research evidence, and implications for attempts to improve students as learners. Explanations examined are these: (1) students lack the necessary study skills: (2) students are of different types, and some student types have limited learning approaches: (3) students choose their approaches to studying, some of which are ineffective or inappropriate: (4) students develop in their sophistication as learners and some are less developed than others; and (5) students are held back in their learning. In conclusion a case is argued for facilitating the development of students' conceptions of the learning process, awareness of the nature and purposes of study tasks, and autonomous flexibility in adopting approaches appropriate to particular contexts. It is further suggested that practical attempts be set within the context of the realities of inadequate curricula, disparate student motivations, and the knowledge that students fit studying into existing life-styles and values. References are provided. (LC)

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UNDERSTANDING WHY STUDENTS DON'T LEARN

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Abstract

Five explanations for students not learning effectively are examined for their soundness, support from research evidence, and implications for attempts to improve students as learners. These explanations are:

1) Students lack the necessary study skills.

2) Students are of different types, and some student types have limited learning approaches.

3) Students choose their approaches to studying - some of which are ineffective or inappropriate.

4) Students develop in their sophistication as learners and some are less developed than others.

5) Students are constrained in their learning.

A case is argued for facilitating the development of students' conceptions of the learning process, awareness of the nature and purposes of study tasks, and autonomous flexibility in adopting approaches appropriate to particular contexts.

SMG 5 Study skills, study habits.

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INTRODUCTION

Practical attempts to help students develop as learners, particularly in the "study skills" area, have not always been grounded in any strong conceptual framework for understanding either why students sometimes don't learn, or how they develop as learners. On the other hand attempts to build conceptual frameworks about learning often seem very distant from students' experience of the problems of studying. This paper presents a critique of five common explanations of why students sometimes don't learn effectively. It draws clear conclusions from these critiques concerning the principles which should underlie any practical steps which could be taken to influence students' development as learners.

To help make these critiques more immediate they will be loosely based around the case of a single science student(1). Here he describes how he tackled some set work, and how his approach to studying fits in with his perception of the demands of his course:

> "Oh, I didn't think about this problem. I just bashed the numbers out. I went straight through it without looking back at anything. I wasn't really interested but, well, you've got to do this stuff. In this sort of problem you've just got to get through to the answer. I find it pretty dull doing it this way so I don't spend long on it.
>
> I've got these notes, from the lectures. These ones aren't too bad, but you often miss things, and can't make head or tail of them afterwards. You don't need to read the books - provided you get it all down you can't go wrong. It's getting it all down that's the problem. But here it was O.K. You just have to more or less get the right formula and bung the figures in.
>
> Provided you get it right you're O.K., you'll get enough marks. It's the safest way really, to pass the course. For the exam I'm banking on recognising the same sort of problems - then you can just trot it out. Easy. If it's something you've never done before you don't stand a chance. Bit hit-and-miss. Scary, really.
>
> I only need a pass 'cos I've got this job lined up, or at least I hope I have. I never thought I'd come to see things like that, you know, I sort of expected it to be different to school, more

1. This case is set in the context of conventional Higher Education, where practically all the research which is discussed here has been undertaken.

interesting, even exciting, but you soon have to get down to it. If you work hard enough you'll get by. Some of the others seem to read the books and discuss it and things, but it's not really on, discussing it over coffee, is it? I bet they'll fail."

Why is this student behaving in such a disappointing, uninspired way?

1. STUDENTS LACK THE NECESSARY STUDY SKILLS

The most common explanation for poor study behaviour is that students lack the necessary study skills. Our science student may not have the necessary skills to tackle the problem in any other way than "bashing the numbers out". He may not have the note-taking skills to do anything other than "getting it all down". The obvious solution, and one that has been very widely adopted, is simply to advise or train students in the necessary skills. However, this apparently simple and attractive diagnoses and cure is bedevilled by problems and pitfalls.

Firstly, it is extremely difficult to identify what the 'necessary' study skills are. If a room full of successful academics were asked to take notes from a lecture, it is pretty certain that they would all take rather different sorts of notes, and that some would not take any written notes at all. This isn't merely a conjecture - we've tried it several times! And yet all these different note-taking strategies apparently have worked for the individuals who adopted them. Thus it appears that successful learners do a variety of different things whilst learning.

This is not to say that there are no differences between successful and unsuccessful learners. Unfortunately these differences are often disappointingly obvious or trivial. This has not stopped study skills programmes from being based on such differences. For example, Wark, of the University of Minnesota, advises students on his programmes to sit at the front of the class, because he has evidence that those who sit at the front of the class do better. It is assumed that such behaviour will cause success. But of course this is unlikely. Students who are keen may do well, and keen students may sit at the front, but a bored student is unlikely to improve merely through sitting at the front. Indeed Edfeldt, (1976) has claimed that there is no evidence of causal relationships between study skills and performance. Even the most extensive correlational studies typically find that variance in scores on study skill inventories "explains" only about 1% of variance in performance, (e.g. Entwistle, 1977, Farrell, 1977). So if you were to choose to train your students in the use of a particular technique, you would almost certainly not be training them to do anything which is necessary and your hopes that students would become more successful as a result would almost certainly not be supported by evidence.

Secondly, it is often very unclear what students are actually doing when they are studying - what study 'skills' might actually consist of. It may be possible to record

some aspects of the observable behaviour of studying but this is unlikely to tell you very much about the underlying cognitive processes - the purposes, plans, and thoughts which direct and make use of this behaviour. For example, various reading recorders have been built to produce a record of some aspects of reading behaviour, such as patterns of eye movement in scanning a text, but we are not very much wiser about how people approach, comprehend and process what they read. Similarly note-taking can be observed through examining what students write down, the layout, use of abbreviations etc. but it is difficult to reveal the processes of selection of subject matter, and its transformation and organisation, which determine why particular items are written down. Two sets of notes of outwardly similar form can have been produced by entirely different processes, for entirely different reasons, and with completely different learning outcomes.

Some aspects of studying are not even open to observation of overt behaviour. Problem solving, for example, can often be an entirely covert activity, entirely in the head of the student. This has not prevented the development of theories of problem solving, but they have tended to differ markedly in important respects, and lead to rather different advice and training in how to solve problems. The contrasting approaches of Polya (1957), De Bono (1971) and Wicklegren (1974) are good examples of this. It is not even unanimously recognised that it is possible to teach general problem solving skills (cf. Woods et al 1977).

This is not to say that there is nothing available to help us understand studying. Indeed, some of the exercises we would use (cf. Gibbs 1979) are based on what seem to be important insights into studying, for example, insights into the development of writing ability (e.g. Britton et al 1975). However, it cannot be expected that existing research into how students study will necessarily reveal what underlies study skills.

Thirdly, and partly as a consequence of the above difficulties, many analyses of study skills, upon which a great deal of study skills training and advice has been based, are fundamentally unsound. Much advice claims a valid scientific basis which it simply does not have. Sometimes, as in the case of advice on memory, the basis is in out-of-date laboratory psychology of extremely dubious relevance (cf. Gibbs and Northedge, 1979). Advice on over-learning and rehearsal falls into this category. Sometimes the basis is little more than impressive sounding claims and psuedo-scientific mumbo-jumbo. Speed-reading falls into this category, and Carver (cf. 1972) has provided an impressive demolition of claims made by speed reading pundits.

Despite these severe problems, you might nevertheless have the feeling that you know exactly what it is that a particular student ought to be doing if she is to study more effectively. However, even if you have diagnosed a need for a necessary study skill, and you have a valid analysis of what that skill consists in order to be able to train your student, you are still likely to have a great deal of difficulty getting the student to adopt the skill. Both giving advice and training through exercises, involve many problems.

Some advice is difficult or impossible to take

Some advice, though based on a sound understanding of what the end product of studying looks like is impossible to take because it lacks an understanding of the process by which this product is achieved. Advice on how to concentrate, for example, may include a reasonable description of the state of mind when one is concentrating, but be completely unhelpful as to how to achieve it. People simply cannot concentrate 'at will'. It is a state reached as a by-product of being engaged in, or absorbed by, a task.

Some advice is impossible to take because what is described is impossible. The advice, on writing sentences, that one should first think through to the end of the sentence before you start writing it is simply impossible to follow even for experienced, proficient writers. (Britton, et al 1975). On the other hand some advice is impossible, or disruptive, to follow for particular people. This may be partly due to the variation between learners, and partly due to the weakness of the understanding of studying on which the advice is based. A good example is advice on planning written work before undertaking it. It is almost universal to advise students to produce a plan for an essay before they write it. James Britton (1975) has studied the development of writing abilities in secondary school children and found that their ways of planning, and their attitudes towards planning, varied very widely:

> "Before any big essay, for example, in English Literature, I think to myself 'Yes, plan an essay like Miss ... said' but I begin to plan it and then suddenly the urge to start the actual piece of written work is overpowering - and 'bang' goes the plan.. .. I can rely on this happening every time without exception."
>
> "I cannot bear writing to a plan. I can rarely be induced to write my own, and the thought of writing to someone else's plan fills me with horror....It has just occurred to me that when writing literature essays I always scribble down all clever thoughts on paper first. Then sometimes I may even write a complete rough essay but usually I write the final essay, using the written facts as a guide to help me think out the argument. I do not know if 'clever thoughts' rate as a plan.... .."
>
> "Earlier this year when I was revising.....I learnt that I write better without a plan. If I just pour my thoughts out on paper I build up a type of plan anyway. But if I try to jot down notes my mind just goes blank."

The problem here seems to be the way students perceive planning. The real planning many people do is often so informal and messy as to pass unrecognised. Clearly the lack of any planning at all can be disastrous, but very formal planning can also be disruptive and unhelpful. When advice over-formalises what is normally an informal process it can become impossible to follow.

Some advice doesn't lead to any change, even when it has been accepted.

There are several ways this seems to happen, and they all emphasise some aspect of the difference between knowing how to do something and actually being able to do it. Students often have rationalisations for their study habits which bear little relationship to what they actually do. A student might tell you that the reason she

is taking notes from a book is to revise from them afterwards. She 'knows' that such revision is a 'good thing'. But she won't actually revise from them because she finds it such a dull and profitless activity.

While attempting to teach students how to study through a National Extension College course (Freeman, 1972) our students were required to send us their notes from a chapter of the course text which covered note-taking. A good proportion of these students had copied out, word for word, the advice in the text to always take notes in one's own words! Also, some had copied advice to structure notes in one's own way and use one's own headings, and had embedded this advice in notes layed out, structured, and headed, exactly as in the chapter. Clearly these students had learnt the advice, at some level, without it influencing their studying in any way. Sometimes students are well aware of the gap between what they 'ought' to be doing, and what they know they are doing. These mature students we interviewed in 1975 seem to have a growing awareness of the advice they are being given by their tutors, and are also aware that they are not doing what they are expected to, even though they'd like to:

JILL	"Mike's comments have told me why my essays aren't proper essays but though I know what I should be doing I still can't write them. He says "you haven't discussed this, you haven't clarified this, you've taken lots of ideas from people and repeated them and haven't drawn the threads together and made conclusions" and I know what I should be doing but I'm still not doing it."
INTERVIEWER	"Why do you think you can't learn from this advice?"
JILL	"Well, I don't know how to put ideas together yet. We should have learnt that from our class discussions but we don't seem to have. Our class discussions should help us bring ideas together and formulate them."
DEE	"And what we tend to do is just to regurgitate what we've read before."
BARBARA	"This is what Marjorie has been trying to do with us from the start, and I don't think we've really appreciated that - last week she was saying "but what do you think?"
SHEILA	"Yes, she wanted your thoughts."
DEE	"But that's the first time I've felt it come across....."
BARBARA	"I've known what she wanted, but I haven't been able to do it."

Sometimes this gap between knowing and doing is evident in the lack of transfer of approaches to studying from one domain to another. This is sometimes wrongly taken to indicate that the student lacks some ability altogether. For example, that a schoolchild cannot ever remember his French vocabulary is taken to indicate that he has a poor memory, though he will no doubt remember who scored the goals in the Cup Final. A study skills course may try and teach students how to be evaluative in essays, when they are perfectly capable of being evaluative in other aspects of their lives: in choosing a boyfriend or deciding whether the manager of the England football team is any good. This lack of transfer is sometimes evident in a very stark way even within one piece of work. One of our National Extension College students had submitted an assignment to us in which she was asked to exercise her

powers of critical thinking on some Daily Telegraph articles. She had carried out a superb job of demolition on the arguments, pointing out mis-use of evicence, appeals to authority, emotive language, and so on. Having completed this impressive task she could not resist offering her own opinion on the topic of the articles and proceeded to commit every logical fault she had just, correctly, accused the articles of committing! This phenomenon will be discussed further within the second explanation for our science student's studying, offered below.

Finally, students sometimes do not follow advice, even though they value it, because it involves a threatening attack on their existing ways of doing things. Even the most confident of us would hesitate at the thought of making a complete twenty-four hour timetable of our work for the next week. We know that it would help us see how much we are getting done and help us to plan our tasks, but the thought of being confronted with all the unreconcilable demands and statements saying: "watched T.V." is just too horrible, so we don't do it. We have had students who know that the way they take notes is ridiculous and useless, but who lack the confidence to abandon their note-taking technique for another which they know will be more useful. In our experience, the less happy and secure a student is in his existing habits, the less likely he is to abandon them in the hope that some new technique will improve things. Simply knowing the advice is not enough.

We believe that quite often students do not follow advice simply because what is suggested sounds so unappealing. The model of a super-efficient, hard working, well-organised, conscientious student embodied in much advice is a pretty off-putting one to those of us who like to feel that learning had more to do with imagination and creativeness and who recognise that learning plays only a limited part along with many other aspects of our lives. There are limits to what we are willing to do in order to become more efficient. We may be perpetually missing deadlines but we are not willing to timetable ourselves any more rigidly. Working late at night may be less efficient than early in the morning, but we can't face working early in the morning. We often seem to ask of students things we are not willing to do, or even try, ourselves. It isn't very surprising when they don't do what we ask.

To return to our science student, if we intend to give him advice about how to go about solving his science problems more effectively then we are faced with the possibilities that:

(i) We may not have any clear idea what skills are really involved in problem solving,

and (ii) even if we can be clear what skills are involved our advice may not be useful,

- our advice may be impossible to follow or disruptive to the student's existing problem solving,
- our advice may not lead to any changes for a variety of reasons such as its being unpalateable or threatening to the student,
- our advice may be followed, but only in a very limited context, or for a short while.

Problems with skills training

Some of the above problems with giving advice can be partly overcome by following up the advice with training - some more extensive practice with the recommended skills. Also when students first adopt a new technique they may initially get worse at that aspect of studying. The unfamiliarity of the technique, and sometimes the interference of being consciously aware of what they are trying to do, can be quite disruptive. They may therefore need time to try it out and get better in a safe context before trying it out in everyday studying. However there are problems, too, with skills training. The main problems are those discussed by Carver (1972) and Gibbs and Northedge (1979) concerned with whether there is any valid basis for the training of skills, and whether skills training does what it claims to do (cf. Graf, 1971).

Training is much more powerful than simply giving advice, and if you train a student to do something, there is a distinct possibility that they will continue to do it in their everyday studying. This may not always be a good thing unless the training also involves some help as to how to use the skill appropriately and with purpose. Most study techniques embody assumptions about the purposes of the technique, or the purposes of studying in general. The student may well not be aware of these assumptions, may misunderstand them, or may not share them and not realise any incompatibility. This may have unfortunate consequences. Students attending study skill training programmes often seem to trustingly abandon all responsibility toward the purpose of the tasks in which they employ the technique. For example, William Perry (1959) here describes what happened when 800 Harvard students with superb fast reading skills tackled a chapter of a book, and were stopped after twenty minutes:

> "We can report that their work-rate in this particular approach was astonishing, and their capacity to answer multiple choice questions on detail was impressive. Some of them had read as many as twenty pages of very detailed material and were able to answer accurately every sensible question we could ask them about the detail.... We asked anyone who could do so to write a short statement about what the chapter was about. The number who were able to tell us.....was just one in a hundred-fifteen..... .."

In other words 99% of these skilled readers were going about reading this chapter in a way which did not involve an attempt to find out what it was about. Perry described their efforts as "obedient purposelessness" and went on to conclude:

> "Until such students revise their sense of the purpose of reading, an increase in effort is likely to produce only worse results."
>
> ".....the mechanics of reading skill are inseparable at this level from the individual's purpose as he reads. If you train someone in mechanics alone, he drops right back into his old habits the minute he picks up an assigned text."

Training in fast reading is particularly prone to misorientation. Worst still, Perry found that a third of the students who were misoriented in their reading also appeared to be oriented towards the wrong goals in their writing.

Emphasis on mnemonics and memory training is another area where assumptions about the nature of learning in higher education are inextricably bound up with the

recommended study techniques. Some of our own students appear to have gained a very distorted impression of what sort of a task studying is, as a result of taking a "how to do it" course. On the course there appeared to be a heavy emphasis on memory, and students were encouraged to practice the use of rhyme, repetition, overlearning, and so on, without an adequate discussion of the appropriateness of such practices for most learning.

2. STUDENTS ARE OF DIFFERENT TYPES, AND SOME STUDENT TYPES HAVE LIMITED LEARNING APPROACHES.

Two points which were raised in the first section are central to the next stage in this discussion. They are that students seem to differ in the ways they study, and that students do not always seem very flexible in changing the way they study. There is a powerful, and popular, perspective on student learning which embodies the notion that differences between students are due to underlying pervasive cognitive styles, or characteristic ways of thinking which are rather like personality characteristics. As a person with a particular personality behaves predictably in different social settings, so a student with a particular cognitive style will study in predictable ways in different study tasks. The student whose statement opened this discussion would therefore be seen not as lacking certain study skills, but as exhibiting characteristics of a particular 'type' of learner. This perspective, and its implications for teachers, needs to be examined rather closely.

There are several sources of this argument and these sources are of sufficiently different form to greatly confuse the issue. Three different typologies of students will be briefly described, to give the flavour of this argument. There are, of course, many other typologies.

Hudson (1968) was concerned to describe and explain why some students seemed to limit themselves strictly to the set study task and not go beyond it, whilst others felt able to set themselves tasks and tackle problems in a freer, more open-ended way. In concrete terms for example, some students tend to read all the set books whilst others read parts of a few set books and parts of a number of other books more loosely related to the course. Hudson related these tendencies to hypothesised underlying intellectual and emotional characteristics, and developed a personality inventory to measure the extent to which students were "syllabus-bound", or "syllabus-free".

Pask (e.g. Pask and Scott, 1972) has started from highly controlled learning tasks and plotted exactly how students move through them. His definitions of different types of students are operational definitions in that they describe the actual operations students characteristically undertake in working through study tasks. He distinguished "serialist" and "holist" learning strategies. In practical terms, serialists go through a topic step by step from the beginning, whilst holists try to get an overview. Serialists employ "operation learning" strategies (e.g. using definitions, using procedural rules) whilst holists use "comprehension learning" strategies (e.g. comparing theory and practice, interpreting theory in terms of the real world).

Marton and his associates at Goteborg (e.g. Marton and Saljo, 1976) have started from qualitative descriptions both of how students describe their learning, and of the outcomes of this learning. They have concluded that the crucial determinant of the quality of learning outcome is the students' approach to learning. This they describe as either "surface level" or "deep level" processing. Surface level processing is characterised by rote learning, memorisation, going straight through a task without thinking, and a general focus, on the subject matter itself (the sign) rather than what it is about (what is signified). Deep level processing is characterised by "making connections", "drawing conclusions", "getting a clear impression" and "getting the point". While Marton has simply described the relationship between level of process and level of outcome, others (e.g. Entwistle and Manley, 1978) have gone one step further and described students as either "surface processors" or "deep processors".

In terms of these analyses of learning style, then, our science student would probably be considered (a) syllabus-bound: "You don't need to read the books - provided you get (the lecture notes) down, you can't go wrong". "Some of the others read the books and discuss things, but it's not really on discussing it over coffee, is it?"

(b) a serialist, adopting operation learning strategies: "I just bashed the numbers out". "You just have to more or less get the right formula and bung the figures in."

and (c) surface processing: "Oh, I didn't think about this problem." "I went straight through it without looking back."

To differing extents, theorists assume that such learning styles are fixed, and that a learner of one style, put in a learning environment demanding a different style, will do poorly. For example, Pask (Pask and Scott, 1972) has shown that serialists do poorly when confronted with wholist learning programmes, and vice versa. As with personality, it is understood that learning style cannot be easily changed, if at all. The implications of this argument for teaching are clearly that teaching must be adjusted to fit the learning styles of different students. There would be little scope for example, for trying to change the way a student tackles problem solving except within the constraints of the students' learning style.

As with the 'study skills' argument there seem to be several reasons for rejecting, at least partially, this view of student learning, and for taking a less pessimistic view of what we as teachers can do about it.

Even if the above position were accepted as a valid basis for action, the practical consequences might be rather odd. Statistically significant differences in learning performance tend to have been found where learners of one extreme type have been put in learning environments of the other extreme type (cf. Pask and Scott, 1972). But, of course in a normal population of students most students will be rather close to the average on any measure of learning type and very few will be examples of extreme types (Gilbert 1979). Also, the range of practical alternative teaching environments is unlikely to be wide. Matching students to environments (given the crudity of existing measures of learning style and learning environment) would be a pretty hit and miss business - and one which nobody has yet attempted.

Until such matching has been attempted and worthwhile results demonstrated, there wouldn't seem to be much basis for pursuing this line of development.

In addition, even in the case of supposedly stable personality characteristics people do not behave identically in different situations. In the late 60s and early 70s social psychologists were grappling with the problem of how much of peoples' behaviour was determined by their personality, and how much by the social situations they found themselves in. It seems that personality on its own accounts for rather little, and that it is the interaction of the person with the social situation which is responsible for most of the variation in behaviour (cf. Bowers, 1971). This might suggest that consistency in the way students learn in different learning environments could be due to the similarity between the learning environments rather than solely to the consistency of learning style of the students.

In fact few theorists still claim to be able to reliably distinguish between students irrespective of the learning context. For example Pask (Pask et al, 1975) has said that different learning tasks require different proportions of operation and comprehension learning strategies, and that successful students are those most flexible in adopting learning strategies which suit the task.

Furthermore Laurillard (1978) has demonstrated that even within one particular science course individual students adopted primarily operation, or comprehension, learning strategies, and surface or deep level approaches, according to the specific problem they were working on. It seems likely that our science student will not necessarily study other problems in the same way as he studied this one. He nevertheless may have adopted a strategy for tackling this particular problem which is not very appropriate. Does this mean that he lacked the ability to adopt an appropriate strategy? Probably not. In several areas where psychologists have tested what people are able to do, it has been realised that what has been taken to be evidence for a lack of ability is really only the consequence of people's lack of understanding of the demands of the test. Examples of this are available in both cross-cultural studies of cognition (e.g. Cole and Scribner 1974) and in the study of child development (e.g. Bryant and Bradley, 1979; Donaldson, 1978).

It therefore seems quite possible that when our science student adopts a serialist approach to problem solving, he does so not because he lacks the ability to adopt a wholist approach, but because he does not realise that a wholist approach would be appropriate. Criticising the argument that behaviour can be understood in terms of people's fixed characteristics, Mischel (1979, p.101) has suggested that "....a more adequate conceptualization must take account of man's extraordinary adaptiveness and capacities for discrimination, awareness, and self-regulation". If our science student could discriminate between the demands of different problems, be aware of the problem-solving strategies he was adopting, and self-regulating about choosing appropriate strategies, then he would show little consistency of learning style (in a similar way to the students in Laurillard's study, mentioned above).

But is there really evidence that students actively choose the ways they go about their studies?

3. STUDENTS CHOOSE THEIR OWN APPROACHES TO STUDYING, (SOME OF WHICH ARE INEFFECTIVE OR INAPPROPRIATE)

There is a good deal of evidence that students give reasons for the way they study. In famous studies by Becker (1968) and Snyder (1971) in American Universities there are vivid examples of students talking about their studying, and why they believe they work in the way they do. Similar studies in the context of British Universities (e.g. Parlett and Simons, 1976) also describe students as definers of their own study tasks. It might be argued that such student explanations are merely post-hoc rationalisations for behaviour which is determined by the students' limited skills or fixed learning styles. However two recent longitudinal studies in British Universities would seem to overcome this objection, as they trace changes in students' explanations over the course of their studies.

Beaty, (1978) in order to understand students' study habits and use of the library, interviewed students over the full three years of their course, about why they were studying. She developed the notion of the "Study Contract" which students implicitly make as a sort of statement of aims and ways of achieving those aims while at University:

> "....students come to University with ideas of what it will be like and with aims at various stages of development. Through interaction with others and experience of the University and course they develop a study strategy, tentative at first, which is consistent with their aims and self-identity. This organisation of attitudes and study patterns soon affects educational outcomes in the form of essay marks, but also in knowledge gained, etc. This provides the student with objective and subjective feedback on the effectiveness of their strategy and allows them to reinterpret and perhaps re-design the Study Contract by changing strategy or perhaps aims in order to be consistent once more."

Beaty showed second year students the transcripts of their first year interview and they recognised the sentiments they had expressed a year before and were able to explain how things had changed and how they now saw things differently. This active re-assessment and changing of study strategy over time is also illustrated in a study by Mathias (1979). He identified two general "types" of approaches to learning: "course-focus" and "interest focus". Course-focussed students stuck to the syllabus (rather in the manner of Hudson's "syllabus-bound" behaviour) e.g. "If you do things which are not on the syllabus they're not going to come up in the exams. The only thing you really come to University for is to get a degree". In contrast, an "interest-focussed" student said "If I were really interested I would try to read more about it and possibly go and see the tutor again depending on how deeply interested I was". Mathias points out that there can be no simple explanation for these differences as "these behaviours did not represent static mental characteristics of students fixed in time, but rather could vary over time as the student moved through his degree course. It seemed more likely that a combination of factors were at work whose interaction and behavioural product was mediated through some process of interpretation on the part of the student". For example, some students in Mathias' study started off with a weak course-focus but over the three years of their course changed their orientation to a strong course-focus: "Over their first year they comfortably coped with the degree course, seemed able to work with little

support and showed a high level of interest in their chosen subjects in which they were willing to place extra effort. They sought a high level of interaction and stimulation from their tutors in order to engage their interests. However during the second year they reassessed their attitude to University and began to question their high level of commitment to their study. This reassessment seemed to come about through a growing self-awareness of the relationship between themselves, University study, and other interests and activities University had to offer. They carried into University a style of work developed at school which was characterised by a high level of commitment. At the same time they also had high expectations of intellectual stimulation. However, they were somewhat disappointed with the level of intellectual stimulation they encountered on their course. ...By the third year they were less likely to emphasise their own interests....."

Let us go back and look at what our science student said:

> "I wasn't really interested but, well, you've got to do this stuff."
>
> "Provided you get it right you're O.K., you'll get enough marks to pass the course. It's the safest way really to pass the course".
>
> "I only need a pass 'cos I've got this job lined up, or at least I hope I have. I never thought I'd come to see things like that, you know, I sort of expected it to be different to school, more interesting, even exciting, but you soon have to get down to it."

He seems to have a clear picture of what is involved in studying, for him, and of what he wants to get out of it. His 'study contract' is to do enough to pass the course in order to get his job, even though the way he's decided to do this is dull. He seems very course-focussed, though there is some indication that he had some interest-focus during the transition from school to University which he has since abandoned. Instead of seeing the way he tackled a problem as an indication of an underlying fixed learning style, it is possible to see it as one consequence of his overall approach to his studying which fits in with his aspirations and his experience of the course. He may have been strongly interest-focussed previously, or go on to become more interest-focussed, but at this moment in time he sees his course, and this particular problem in a course-focussed way. Any attempt to influence the way this student goes about his studying must clearly take into account his overall orientation, his aspirations, and his perceptions of his course.

4. STUDENTS DEVELOP IN THEIR SOPHISTICATION AS LEARNERS AND SOME ARE LESS DEVELOPED THAN OTHERS.

It hardly seems credible that all students consciously decide how to go about their studies. Indeed, some students give every impression of having no awareness at all of the way they study. Miller and Parlett (1973) found that almost half the students in their study were "cue-deaf" - that is, they were oblivious to cues about exactly what is to be learned. In both the Beaty and the Mathias studies there are numerous suggestions that students become more aware, more able to consciously choose personally relevant learning strategies, as they become more experienced learners. Our science student may not have a sufficiently developed awareness of the task facing him to choose a more productive learning strategy.

This argument does not focus on the development of skills or techniques, but on the development of an awareness both of the demands of study tasks, and of the alternative learning strategies relevant to those study tasks. The clearest proponent of this argument is Saljo (1979). He has argued that: "the fact that people learn in different ways could be understood as a reflection of the fact that they have different beliefs or conceptions of learning". He interviewed a wide variety of students about their conceptions of learning. He found that students, at one extreme, took learning for granted: the task of the learner is to 'get all the facts into your head' in a reproductive, rote memorising way, without regard for what is important. As students became more experienced they started to reflect on the process of learning, and began to make the following three main distinctions:

(1) They became aware of the influence of the context of learning on what should be learnt, and how.

(2) They distinguished between learning for 'life' and learning in school (or in University). Learning in school was seen as stereotyped and routine and unrelated to anything outside the school.

(3) They distinguished between 'learning' and 'understanding'. This is rather similar to Marton's distinction of surface and deep level processing.

Students were found to differ in the extent to which they were aware of influences on their learning, and in the extent to which they made the above distinctions. Their conceptions of learning could be seen to develop. A student might not be expected to follow advice to tackle a study task in a way which lead to understanding rather than rote learning unless he could recognise the difference between these two kinds of learning. Saljo suggests that at early stages of development students are unaware of this distinction.

Also, a comprehensive developmental scheme is offered by Perry (1970) based on many years experience of counselling students on their studying at Harvard University. His scheme of intellectual and ethical development helps explain why we as teachers can be so differently perceived and understood by various students. To illustrate:

> "Let us suppose that a lecturer announces that today he will consider three theories explanatory of - (whatever his topic may be). Student A has always taken it for granted that knowledge consists of correct answers, that there is one right answer per problem, and that teachers explain these answers for students to learn. He therefore listens for the lecturer to state which theory he is to learn.
>
> Student B makes the same general assumptions but with an elaboration to the effect that teachers sometimes present problems and procedures, rather than answers 'so that we can learn to find the right answer on our own'. He therefore perceives the lecture as a kind of guessing game in which he is to 'figure out' which theory is correct.....
>
> Student C assumes that an answer can be called 'right' only in the light of its context, and that contexts or 'frames of reference' differ. He assumes that several interpretations of a poem, explanations of a historical development, or even theories of a class of events in physics, may be legitimate 'depending on how you look at it'. ....he supposes that the lecturer may be about to present three legitimate theories which can be examined for their internal coherence, their scope, their

fit with various data, their predictive power etc.

Whatever the lecturer then proceeds to do ... these three students will make meaning of the experience in different ways.... ."

(Perry, 1970)

In this way students' perceptions of the tasks facing them may be limited by the intellectual stage of development they are at. Perry outlines nine stages of development, from an extreme absolutist position, through relativism to a flexible personal commitment to ideas. Let us have another look at how our science student described his learning:

"In this sort of problem you've just got to get through to the answer".

"Provided you get it all down you can't go far wrong. It's getting it all down that's the problem".

"Provided you get it right you're OK."

"If you work hard enough you'll get by."

Here our science student may be revealing a stage of development as a learner which is reflected in a lack of awareness of some possible distinctions about learning, and in an absolutist approach to knowledge. If this was the case, the task of helping students to learn more effectively becomes one of increasing students' awareness of alternative conceptions of learning, and of fostering intellectual development. This latter task seems to be, at least partly, the function of the students'entire education, and it is to demean its importance to relegate it to the status of a separate programme to improve studying.

It is important to note that the sort of development process described here is natural, and everyone goes through it. Our science student isn't simply a fool, he's at a particular stage in his development as a learner. It is also interesting to realise that he may be at a <u>different</u> stage in another subject. He may be thinking relativistically about his Introduction to Social Science course, and only be interested in what social science can say about his life. It would not be possible simply to make this student transfer his approach towards social science to his science studies and it would not be possibly simply to make him immediately approach his science like student "C" in the extract from Perry above. Nevertheless, his development can be fostered. It can also be held up.

5. <u>STUDENTS ARE CONSTRAINED IN THEIR LEARNING</u>

It may not be sufficient to simply be at an advanced stage of development as a learner to tackle study tasks in a fruitful way. Even when students are sophisticated in their awareness of the learning process and in their conceptions of the task facing them they may study in a way which leads to very unsatisfactory low-level outcomes. This seems to be due to some powerful constraints on learning which are beyond the students' control. "Improving" students may have no material effect on their studying unless these constraints are removed.

The most powerful and pervasive influence on student learning is the curriculum and its assessment system. Dahlgren (1978) has argued that the sheer size of curricula constrain the approaches to learning students take:

> "In order to cope with overshelming curricula, the students probably have to abandon their ambitions to understand what they read about and instead direct their efforts towards passing the examinations. Higher education, not to say all education, would contribute a lot more to the development of thinking if understanding were made the main criterion of progress. In order to permit that, many curricula would have to be reduced by something like 50 to 75 per cent."

It seems very likely that some attempts to increase the amount students can read may be fundamentally misguided, and that perhaps instead we should be attempting to get them to read less (though at a deeper level of understanding of course!)

Dahlgren was able to demonstrate that students with very poor understanding of the central concepts of a course were able to pass their exams because the exams only tested 'surface level' outcomes of learning: the memorization of algorithmic procedures for solving problems. Our science student seems to be adopting just such a strategy:

> "You just have to more or less get the right formual and bung the figures in."
>
> "For the exam I'm banking on recognising the same sort of problems, then you can just trot it out. Easy."

Here a successful student describes how academic success can be achieved without learning anything significant:

> "There's an awful lot of work being done up here for the wrong reason. I don't know exactly how to put it, but people are going through here and not learning anything at all..... There's a terrific pressure on everybody here to get good grades. It's very important....And yet there are a lot of courses where you can learn what's necessary to get the grade, and when you come out of the class you don't know anything at all. You haven't learned a damn thing really."
>
> (Becker et al. 1968 p.59)

This very limited goal of assessment and its effects on student learning has been comprehensively described by Snyder in his study of the 'hidden curriculum'. By the 'hidden curriculum' is meant the curriculum which, while very different from the formal, public curriculum is the one which students must address themselves to if they are to succeed:

> "I observed a professor in one class beginning the term by explaining that the students were expected to be creative and involved; in short they were to be engaged. They would have the opportunity to take risks, to make mistakes..... Five weeks later the first quiz was given. The students found that they were asked to return a large amount of information that they could only have mastered by memorisation. There was considerable discrepancy between the students' expectations for the course and what they were in fact expected to learn in order to pass the quiz. In spite of the professor's opening pronouncements, the hidden, but required task was not to be imaginative and creative, but to play a specific, tightly circumscribed academic game."
>
> (Snyder, 1971)

Miller and Parlett's (1974) study of the "examination game" highlights the central role assessment has in the forming of student learning strategies. They described "cue-seekers" who actively sought out cues as to what the special interests and concerns of the teacher who would be assessing them were. They got better degrees than those who did not 'play the system' but even the successful cue-seekers realised what they were losing:

> "You know you want to get a certain class of degree within the system, but as far as assimilating knowledge properly is concerned, it just doesn't work, because if you play the game properly you're choosing all the time, and not getting an overview because you know there will be a certain question you have to answer".
>
> (Ibid, p.53)

There appears to be a risk involved, then, in choosing to follow up interests, in choosing to understand the subject rather than "play the system". Some students do take this risk:

> "Some had the confidence to impose their own pattern on the course while others did not take the risk. The risk was greater for mathematicians whose course was highly prescribed than for the chemists who were encouraged to some extent to seek other views on their subject."
>
> (Mathias, 1978)

It seems likely that our science student had not taken this risk, though he recognised that other students had done so.

Fransson (1977) has demonstrated experimentally that students who were made highly anxious by a test and tried to adapt to the demands of the test, produced 'surface-level' processing, ineffective, reproductive attempts at answers to the test questions. He concluded:

> "If deep level processing is valued, every effort must be made to avoid threatening conditions which rely mainly on extrinsic motivation. This is especially important when the initial interest of the students in the learning task is low."

This is obviously not a startling new discovery. Dewey (1913) discussed this sixty years ago and the role of threat in inhibiting meaningful learning is central to the psychologies of George Kelly (1955) and Carl Rogers (1969). Three of Rogers ten 'principles of learning' concern threat, including:

> "5) When threat to the self is low, experience can be perceived in differentiated fashion, and learning can proceed." (p.161)

Similarly, analyses of the motivations of students suggest that limited, inflexible, and surface-processing learning is common amongst students motivated by a fear of failure, (Entwistle and Wilson, 1977; Biggs, 1977). It may be that our science student does not lack study skills, does not have a limiting cognitive style, and is not even at an early stage of intellectual development, but has simply bowed down to the threatening requirements of the assessment system and is afraid of failure. He said:

> "It's the safest way, really, to pass the course".
>
> "If it's something you've never done before you don't stand a chance. Bit hit-and-miss. Scary really."

Under threat we sometimes regress to cruder ways of seeing things which we have employed at an earlier stage in our understanding. Perry (1977) has observed that:

> "....a student, as he loses confidence in himself, tends paradoxically to fall back on less and less productive methods of learning" (p.121).

Similarly, Perry (1970) has described how students revert to earlier stages in their intellectual development when their ideas are most under threat. It has always seemed to us that it is exactly those students who are most in need of a more flexible approach to their learning and who feel least secure in the efficiency of their approaches, who are most deeply entrenched and least likely to change. There is a suggestion from the work of student counsellors at the University of Aston (Nelson-Jones and Toner, 1978) that it is not the particular study methods a student adopts which are important so much as the students' sense of competence as a learner.

There are two other potential limitations on the way in which students tackle their studying. These have been highlighted by Ramsden's (1978) study of the way students learn in different departments at Lancaster University:

> "The variables which appear to exert most influence on a student's level of processing in both arts and science are the student's background knowledge of the field and the student's level of interest in the task. The former appears to be more important in scientific subjects....In the following extract a natural science student describes how his previous knowledge of a type of problem enables him to take a deep level approach, while his weakness in a basic mathematical concept makes his approach to another part of the same question anxious, passive, and superficial:
>
> > "It was like one of the questions from a previous course, which I could relate. It was a Shroedinger equation for a particle in a box, which we'd solved generally before in Chemistry, so I could relate it, I could see a picture of what I wanted, I knew basically what sort of answer I should get, and from that I could work my way through it.... The other bit was different; I couldn't do it. Basically I gave up with it, because it was a function, which I've never really understood" "
>
> (Ramsden, 1978 pp.12-13)

It may not be very novel to mention these two factors, but if a student lacks background understanding of the subject matter, and lacks interest in it, then there probably isn't much hope of changing the way he approaches learning that subject matter merely by working on his study methods. Our science student said:

> "I wasn't really interested but, well, you've got to do this stuff".
> "I find it pretty dull doing it this way, so I don't spend long on it."

To some extent however, this lack of interest, unwillingness to put much time in and generally finding studying dull, can be a consequence of the study strategy one adopts. In the Open University it has been found that students obliged to adopt more active and creative studying by the demands of the project element of courses, put in many more hours than on more passive parts of the course and find this very rewarding (Henry 1977). Similarly a study by Svensson (1977) suggests that students who focus on parts of the text in sequence, memorise details and so on, spend fewer hours studying than those who attempt to understand the overall meaning of the text and search for the author's

intention. It seems reasonable to assume that some ways of going about studying are inherently boring and unlikely to lead to prolonged periods of study. This is important because some study skills advice recommends study activities of paralysing dullness.

CONCLUSION

To summarise the points made above:

1) It may not be helpful to view poor students as lacking certain skills. In any case it is very difficult getting students to use new 'skills' appropriately.

2) It may not be helpful to view students as having a fixed style of learning which limits their approaches to studying. Poor studying may be better understood as revealing a lack of understanding of the demands of study tasks. This may be especially true when the nature of the study task has changed between school and higher education. This would suggest that rather than adopting different fixed curricula for different types of students, it would be more useful (and easier) to help students understand the nature of study tasks, and to help them use their flexibility in adopting different approaches to different tasks.

3) To some extent students actively and consciously choose their approaches to study. Their choice is influenced by their overall approach to being a student and is not separate from all other aspects of their lives. Any attempt to influence the way students study will need to take this into account and not tackle studying as if it was made up of neutral techniques.

4) To some extent students seem to develop as learners in that they develop increasingly sophisticated conceptions of the learning process and of the nature of knowledge. A goal of the whole of education should be to encourage such development, and this should clearly be the central goal of any direct attempt to influence student learning.

5) Even a skilled sophisticated student can go about learning in limited, surface-processing ways if there are certain external constraints. The sheer size of curricula, the demands and threats of the assessment system, lack of background knowledge of the student and lack of interest in the study task are the primary constraints.

We have not set ourselves the task here of discussing how to tackle these constraints, but while they exist attempts to help students learn more effectively may be frustrated to some extent. Some attempts to train students in study skills seem no more than educationally repressive devices to fit students within such constraints. Consequently, we would argue that practical attempts to help students adopt more purposeful and effective approaches to their learning should have the following goals:

1) The development of students' conceptions of the learning process. By this I do not mean heavy theoretical teaching on learning, but a student-centred facilitation of students' own awareness.

2) The development of students' awareness of the nature, and purposes of study tasks. By this I do not mean training in the use of specific techniques.

3) The development of autonomous flexibility in adopting learning approaches appropriate to particular study tasks and learning intentions, and the emancipation of students from habitual and limiting approaches.

Such practical attempts must be set within the context of the realities of inadequate curricula, disparate student intentions in studying, and in the knowledge that students fit studying into existing life-styles and values. This implies getting away from:

- notions of the average, or ideal, student, or way of studying
- notions of study methods being appropriate independently of course content and curriculum design
- notions of curriculum goals being synonymous with student goals
- notions of study activities being of a purely technical, or cognitive, nature.

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